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FY 1990/1991 BIENNIAL RDT&E DESCRIPTIVE SUMMARY

Program Element: #0303603F

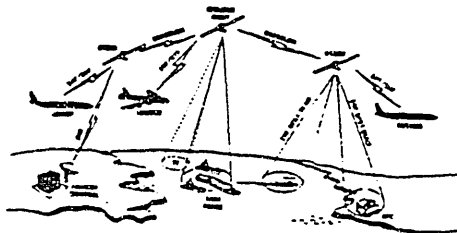
Project: #2932

PE Title: Milstar Satellite Communications System
(Space and Mission Control)

Budget Activity: 3 -

Strategic Programs

Project Title: Milstar



POPULAR NAME: MILSTAR

A. (U) SCHEDULE/BUDGET INFORMATION (\$ in Thousands):

SCHEDULE	FY 1988	FY 1989	FY 1990	FY 1991	To Complete
Program Milestones	N/A	N/A	N/A	MCE: MS IIIA Jan, FY 91;	MCE: MS IIIB, 1st Qtr, FY 92; Satellite: MS III, 1st Qtr, FY 92
Engineering Milestones	MCE CDR		System End-to-End Test	N/A	N/A
T&E Milestones	N/A	N/A	N/A	MCE EOA, Oct, FY 91	System IOT&E, 3rd Qtr, FY 92
Contract Milestones	Ongoing	Ongoing	Ongoing	MCE LRIP	Complete FSD
BUDGET (\$000)	FY 1988	FY 1989	FY 1990	FY 1991	Program Total (To Complete)
Major Contract	358,452	246,583	374,537		Continuing
Support Contract	23,000	23,000	23,000		Continuing
In-House Support	795	844	844		Continuing
GFE/ Other	2,532	2,351	1,611		Continuing
Total	384,779	272,778	400,092		Continuing

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B. (U) BRIEF DESCRIPTION OF MISSION REQUIREMENT AND SYSTEM CAPABILITIES:

The Milstar Satellite Communications System is a joint service program to develop and acquire the Milstar Extremely High Frequency (EHF) satellite, its mission control segment, and new or modified communications terminals. The Milstar system will provide a highly survivable, jam-resistant, world-wide, secure communications system to meet the minimum essential wartime communications needs of the President and Commanders-in-Chief to command and control selected Air Force strategic and tactical forces through all levels of conflict. It will also support other high priority users in crisis/contingency situations. This Program Element (PE) funds for development of the Milstar satellite and its associated Mission Control Elements (MCE).

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1988 Accomplishments:

- (U) Continued final bus assembly for Developmental Flight Satellite #1 (DFS-1) and initial integration of the payload onto the spacecraft
- (U) Continued fabrication of DFS-2 and DFS-3, and ordered long lead parts for DFS-4
- (U) Conducted compatibility testing between communications payload and Service terminals
- (U) Conducted system level CDR for MCE
- (U) Continued IOT&E planning for MCE
- (U) Completed MCE platform study and conducted platform design for future installation of engineering development model MCEs
- (U) Continued launch system integration efforts
- (U) Initiated Mission Control Segment integration at Consolidated Space Operations Center
- (U) Completed Independent Cost Analysis

2. (U) FY 1989 Planned Program:

- (U) Continue DFS-1 hardware and software integration
- (U) Complete bus integration
- (U) Deliver DFS-1 payload to prime contractor
- (U) Continue launch vehicle integration
- (U) Continue qualification testing and system level acceptance testing
- (U) Conduct enhanced compatibility testing between communications payload and all three Service terminals
- (U) Continue fabrication of DFS-2 and DFS-3 and start DFS-4
- (U) Continue acquisition of long lead parts for DFS-4
- (U) Complete planning for Mission Control Complex (MCC) at the Consolidated Space Operations Center at Falcon AFS, CO, and begin activation
- (U) Begin installation of engineering development model MCEs

3. (U) FY 1990 Planned Program:

- (U) Complete assembly of DFS-1

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- (U) Continue fabrication of DFS-2 and DFS-3, and exercise fabrication option for DFS-4
- (U) Order long lead parts for DFS-5
- (U) Conduct system level end-to-end testing using DFS-1, MCE and terminals of all Services
- (U) Continue activation of Milstar Master Control Center (MMCC) and Mission Control Center (MCC) at Consolidated Space Operations Center (CSOC)
- (U) Conduct IOT&E of MCE
- (U) Continue installation of development model MCEs

4. (U) FY 1991 Planned Program:

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- (U) Order long lead parts for first production satellite, #6
- (U) Award MCE Low Rate Initial Production (LRIP) contract
- (U) Activate MMCC and MCC at CSOC
- (U) Continue integration of engineering development model MCEs
- (U) Conduct detailed planning for Milstar system-level IOT&E
- (U) Conduct MCE IOT&E

5. (U) Program to Completion

- (U) Complete development work on satellite and MCE
- (U)
- (U) Begin Full Scale Production (FSP) of MCEs in FY 1992
- (U) Begin satellite production in FY 1992 with satellite #6
- (U) Begin installation of production model MCEs
- (U) Conduct system-level IOT&E
- (U) Attain Initial Operational Capability in
- (U) Milstar is a continuing program

D. (U) WORK PERFORMED BY: The development of the Milstar satellite and the MCE for the Milstar system is managed by Air Force Systems Command's Space Division, Los Angeles AFB, CA. The contract for Full Scale Development of the Milstar satellite and MCE was awarded on 30 June 1983. The prime contractor is Lockheed Missiles & Space Co., Sunnyvale, CA. Subcontractors to Lockheed include: Hughes Aircraft Co., El Segundo, CA (crosslink and frequency and time standards); TRW, Inc., Redondo Beach, CA (payload subsystem); General Electric Co., Valley Forge, PA (data handling subsystem); and Ford Aerospace Communications Corporation, Palo Alto, CA (crosslink receivers). The Aerospace Corporation, El Segundo, CA, provides general system engineering and integration.

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E. (U) COMPARISON WITH FY 1989 DESCRIPTIVE SUMMARY:

TYPE OF CHANGE	Impact on System Capabilities	Impact on Schedule	Impact on FY 1990 Cost
Tech	None	None	None
Sched	None	None	None
Cost	None	None	+41,686

NARRATIVE DESCRIPTION OF CHANGES

1. (U) ENGINEERING CHANGES: None
2. (U) SCHEDULE CHANGES: None
3. (U) COST CHANGES: Zero base transfer of funds and Department of Defense reductions.

F. (U) PROGRAM DOCUMENTATION:

- (U) Joint Milstar Communications, Control and Operations Concept (JMCCOC), Volume I (May 1985) and Volume II (Mar 1988).
- (U) Test and Evaluation Master Plan (TEMP), 9 Aug 1988.

G. (U) RELATED ACTIVITIES:

- (U) PEO303601F (Milstar Satellite Communications System (AF Terminals))
- (U) PEO604577N (EHF Satellite Communications)
- (U) PEO303142A (Tactical Communications Ground Environment)
- (U) PEO303109N (Satellite Communications)
- (U) PEO303605F (Satellite Communications Terminals)
- (U) PEO305119F (Space Boosters)
- (U) PEO303603N (Milstar Satellite Communications System)
- (U) There is no unnecessary duplication of effort with the Air Force or the Department of Defense.

H. (U) OTHER APPROPRIATION FUNDS (\$ In Thousands):

	<u>FY 1988</u>	<u>FY 1989</u>	<u>FY 1990</u>	<u>FY 1991</u>	<u>Program Total</u> (To Complete)
Missile Procurement (Space and Other Support (Advanced Procurement))(BA 14)					
Funds	N/A	N/A	N/A		Continuing
Quantity	N/A	N/A	N/A	Long lead	Continuing
Other Procurement (Electronics and Telecommunications Equipment) (BA 63)					
Funds	N/A	N/A	N/A		Continuing
Initial Spares	N/A	N/A	N/A		Continuing
Quantity	N/A	N/A	N/A	6	Continuing

I. (U) INTERNATIONAL COOPERATIVE AGREEMENTS: Not Applicable

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